REMARKS

I. Introduction

Claims 14-19 and 22-27 are pending. By this Amendment, claims 14-19 and 22-27 are amended. Support for the amendments to independent claim 14 may be found on page 7, lines 4-6, for example. The claims are also amended for clarity, antecedent basis and consistency with the amendments to independent claim 14. No new matter is added. A Request for Continued Examination is attached. Reconsideration of the application in view of the above amendments and the following remarks is respectfully requested.

II. July 13, 2005 Information Disclosure Statement

The initialed Form PTO-1449 enclosed with the April 15, 2008 Office Action indicates that the Examiner regards references 2, 3 and 5 on that Form PTO-1449 as being not in conformance, and therefore not considered. The references appear to not have been considered because they are in a language other than English. In that case, Applicants note that, according to the Information Disclosure Statement filed on July 13, 2005, references 2, 3 and 5 were first cited in the International Search Report, and submitted to the Patent Office with an English-language version of the International Search Report. Further, the requirement for a concise explanation of relevance can be satisfied by submitting an English-language version of the Search Report (MPEP §609.04(b)). Accordingly, Applicants respectfully submit that the July 13, 2005 Information Disclosure Statement was in conformance with the requirements of the MPEP and CFR, and Applicants request that the Examiner consider references 2, 3 and 5 and return a fully initialed copy of the Form PTO-1449 to Applicants' representatives. For the Examiner's convenience, another copy of PTO-1449 is attached for initialing.

III. 35 U.S.C. §112, First Paragraph, Rejections

The Office Action rejects claims 14-16 under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the written description requirement. The amendments to the claims obviate some aspects of the §112, first paragraph, rejections. The remaining aspects of the rejection are respectfully traversed for at least the following reasons.

First, the Office Action does not provide "reasons why a person skilled in the art at the time the application was filed would not have recognized that the inventor was in possession of the invention as claimed in view of the disclosure of the application as filed," as required by MPEP §2163.02. Rather, the Office Action only provides that these terms "are not supported by the application as filed."

Second, the application's original disclosure does support the recited terms. Applicants note that there is no requirement to use language verbatim from the disclosure in the claims. Support for the recited terms may be either express, implicit or inherent (MPEP §2163.I.B). The following disclosure, for example, supports the recited features:

Claim	Previously Recited Feature	Currently Recited Feature	Supporting Disclosure
14 (and 15-19 and 22-27, by dependency)	"at least one first conductor"	"at least one blade conductor"	"connector 11" (Figs. 2-8)
15 and 16	"embossment"	"embossment"	The bump in connector 11 (Fig. 2; p. 7, lines 3-4) or connecting conductor 5 (Fig. 3; p. 17, lines 13-17); Figs. 4 and 8

Accordingly, reconsideration and withdrawal of the rejection of claims 14-19 under 35 U.S.C. §112, first paragraph, are respectfully requested.

IV. 35 U.S.C. §112, Second Paragraph, Rejections

The Office Action rejects claims 17, 19 and 23 under 35 U.S.C. §112, second paragraph, as allegedly being indefinite. In particular, the Office Action asserts that there is insufficient antecedent basis for the recitation of "the first connector" in claims 17, 19 and 23.

One of ordinary skill in the art would have regarded these claims as definite, when read in light of the specification, as discussed below.

Claims 17, 19 and 23 are amended to recite the "blade conductor" instead of the "first connector," but these claims are not amended in response to the §112, second paragraph, rejection. Claims 17, 19 and 23 each depend from independent claim 14, which already recites "at least one blade conductor." Thus, one of ordinary skill in the art would have understood that the blade conductors recited in claims 17, 19 and 23 each refer to the blade conductor recited in claim 14.

During the December 18, 2008 personal interview, Examiner Tai and Supervisory Patent Examiner Neckel supported the §112, second paragraph, rejection because claim 14 previously recited "at least one first connector," (and now recites "at least one blade conductor") whereas dependent claims 17, 19 and 23 do not recite "at least one." Thus, the Examiners indicated that it was not clear whether, if claim 14 reads onto multiple first connectors, claims 17, 19 and 23 read onto each of those multiple connectors, or only one. Claims should be given, however, the broadest reasonable interpretation (MPEP §2111). Thus, if the Examiners regard claims 17, 19 and 23 as admitting two interpretations, they should give these claims the broadest reasonable interpretation. Second, recitations of "a" or "an" object may generally read onto one or more of those objects. Accordingly, the recitation of "the blade conductor" in claims 17, 19 and 23 is consistent with the recitation of "at least one blade conductor" in claim 14. Third, a claim is indefinite under §112 only "when a claim remains insolubly ambiguous without a discernable meaning after all reasonable attempts at construction" (MPEP §2173.02, internal citations omitted). One of ordinary skill in the art would have understood that claims 17, 19 and 23 are definite, when read in light of the specification and when given their broadest reasonable interpretation. Thus, the recitations of "the blade conductor" in claims 17, 19 and 23 satisfy the insolubly ambiguous standard set

forth in the MPEP. Accordingly, reconsideration and withdrawal of the §112, second paragraph, rejections are respectfully requested.

V. 35 U.S.C. §103(a) Rejections

The Office Action makes the following rejections under 35 U.S.C. §103(a): claims 14-16, 24, 26 and 27 are rejected over U.S. Patent No. 5,961,740 to Wambach ("Wambach 1") in view of U.S. Patent Nos. 4,210,462, 3,688,248 and 6,075,201 to Tourneux, Modrey and Wambach ("Wambach 2"), respectively; claims 17, 18, 22 and 23 are rejected over Wambach 1, Tourneux and Modrey in view of U.S. Patent No. 4,880,401 to Shima; claim 19 is rejected over Wambach 1, Tourneux and Modrey in view of U.S. Patent No. 6,111,772 to Lee; and claim 25 is rejected over Wambach 1, Tourneux and Modrey in view of U.S. Patent No. 3,721,948 to Brandt. These rejections are respectfully traversed for at least the following reasons.

A. The Combinations Of Applied References Would Not Have Suggested At Least One Blade Conductor, As Recited In Claim 14

Claim 14 is amended to recite "at least one blade conductor." Claim 19 previously recited similar subject matter. In rejecting claim 19, the Office Action acknowledges that Wambach 1, Tourneux and Modrey do not disclose the metal blade feature. The Office Action relies on Lee as supplying the missing subject matter. The Office Action's reliance on Lee is misplaced for at least the following reasons.

1. The Devices Of Modrey And Lee Are Inconsistent With Each Other

In rejecting independent claim 14, the Office Action acknowledges that Wambach 1 and Tourneux do not disclose that contact between the free end of the electrical connection system and the connecting connectors of solar cells is achieved by means of pressure deformation. The Office Action relies on Modrey as supplying the missing subject matter.

Modrey discloses using the spirally wound springy metal strip 1, which is inserted into a pin-hole and maintains contact with the pin-hole through radial pressure (Figs. 5, 6, 10A and 12). During the December 18, 2008 personal interview, Examiner Tai asserted that the obviousness rejection over Modrey is based on a simple substitution: connecting line 4 in Wambach 1 could be replaced by spirally wound springy metal strip 1 from Modrey. In that case, however, the previously recited first connector, and currently recited blade conductor, is a spirally wound springy metal strip 1, as shown in Modrey Fig. 1, and not a metal blade, as shown in Lee Fig. 7 (elements 522 and 532). Modrey teaches that its springy metal strip 1 provides pressure because of the radial expansion of its spirally round, cylindrical shape. Metal blades, such as those shown in Fig. 7 of Lee, are not spirally wound and do not have a cylindrical shape, and therefore cannot exert any radial force. Thus, further modifying the spirally wound springy metal strip in Modrey based on the metal blades in Lee would undermine the ability of the springy metal strips to provide pressure.

Thus, the teachings of Modrey and Lee are inconsistent with each other, such that modifying Modrey based on Lee would result in the combination failing to provide the recited pressure feature. Accordingly, the Office Action's reliance on Lee is misplaced.

2. The Office Action Reason Or Rationale For Combining Lee With Tourneux Is Improper

The Office Action asserts that it would have been obvious for one having ordinary skill in the art to include a metal blade as suggested by Lee in the connector of Wambach 1, Tourneux and Modrey in order to "easily control the interconnection between the connector and the connecting conductor." The asserted reason or rationale does not apply to the photovoltaic module recited in the pending claims, as discussed below.

Lee discloses an electric connector system in which the voltage to the system can be controlled by inserting one of metal blades 1522 and 1532 into their corresponding slots

(Fig. 7). For example, the plate 1521 is connected to a low voltage (e.g., 125V) output terminal, while the plate 1531 is connected to a high voltage (e.g., 250V) output terminal. Lee further discloses that each of these metal blades may be rotated into an operable position, or retracted from that operable position, to connect with a corresponding receiver (Fig. 7 and col. 4, lines 26-34). Thus, Lee's disclosure of using metal blades 1522 and 1532 to "easily control the interconnection between the connector and the connecting conductor" refers to the ability of these blades to rotate into, and retract from, their operable, connecting positions.

The ability of the metal blades 1522 and 1532 to rotate into, and retract out of, an operable, connecting position, is incompatible with the disclosure of a sealed internal conductor, locked with an adhesive 19, inside of a solar cell, as disclosed in Tourneux. The internal conductors in such a sealed solar cell module, such as electric connection 12 (Fig. 1) cannot accommodate the insertion or removal, or the rotatable extension and retraction, of metal blades 522 and 532 as disclosed in Lee. The internal connectors in Tourneux are held in place by the adhesive 19 and cannot move to be inserted, removed, or rotably extended or retracted. Thus, the blade conductor in Tourneux would not lead to the claimed feature wherein the electrical contact between the internal end of the blade conductor and a free end of a connecting conductor is formed by pressure from the internal under-pressure maintained within the tight internal volume by the seal and a raised portion of the internal end of the blade conductor or a raised portion of the free end of the connecting conductor. The teachings of Lee and Tourneux are, therefore, incompatible. Accordingly, Lee's disclosed advantage of easily "controlling the interconnection between the connector and the connecting conductor" would not have presented a reason for combining Lee and Tourneux.

B. Tourneux Does Not Disclose The Electrical Contact Being Formed By Pressure From The Internal Under-pressure And A Raised Portion Of (1) The Internal End Of The At Least One Blade Conductor Or (2) The Free End Of The Connecting Conductor

Tourneux discloses two different pressures, neither of which can reasonably be considered to correspond to the recited internal under-pressure being maintained within the tight internal volume by the seal that provides the electrical contact by pressure. The two pressures do not correspond to the recited under-pressure because: (1) the pressures are external to the solar cell in Tourneux, and not maintained within the tight internal volume, as recited in claim 14; (2) the pressures are used only during assembly process of the solar cell in Tourneux, and not maintained within the tight internal volume by the seal, as recited in claim 14; and (3) the pressures are directed to assembling the solar cell in Tourneux, as discussed above, and therefore do not provide the electrical contact by pressure, as recited in claim 14.

The first pressure that Tourneux discloses is a negative pressure in col. 3, lines 14-21, and discussed further in cols. 6 and 7 (Figs. 4 and 5). The disclosed negative pressure refers to a lack of pressure. For example, col. 3 discloses that the "negative pressure produced in the evacuated space advantageously results in a residual pressure of less than 1000 Pascal." That is, the disclosed negative pressure is merely a vacuum formed in chamber 60 where the solar cells are assembled (Fig. 5). The aim of the vacuum formed in chamber 60 is the elimination of air bubbles produced during hardening of the polymer filling the whole volume between the cells and the glass plates 14 and 15, thus eliminating any air inclusion within the polymer and thus in the laminated assembly (column 6, lines 58-62). The vacuum formed in chamber 60 is external to the solar cell in Tourneux, and does not provide an internal under-pressure within the tight internal volume, as recited in claim 14. Further, the vacuum formed in chamber 60 is used during an assembly procedure, and is released after the two subassemblies are combined and held together by a load (column 7, lines 5-10). Thus, the

vacuum does not provide an internal under-pressure within the tight internal volume once the seal is in place, as recited in claim 14.

Tourneux also discloses a second pressure: a load (element 72 in Fig. 5) may be applied to a top subassembly (element 70 in Fig. 5) to hold two subassemblies together during the assembly process (col. 7, lines 6-10). The load applies a pressure on top of the subassemblies. Thus, the load is external to the solar cell in Tourneux, and does not provide an internal under-pressure within a tight internal volume, as recited in claim 14. Further, the load is applied during the assembly procedure to hold the two subassemblies together, and therefore is not maintained within the tight internal volume once the seal is in place, as recited in claim 14.

As discussed above, both the negative pressure and the load disclosed in Tourneux are used during the assembly procedure to assemble the solar cell. Thus, the pressures are not used during operation of the solar cell. Accordingly, Tourneux is not directed to using either of the pressures to provide any electrical contact by pressure, as recited in claim 14. Nor does the Office Action point to any portion of Tourneux as disclosing that the load is related to providing any electrical contact by pressure.

In view of the above, one of ordinary skill in the art would not have considered any disclosure in Tourneux as reasonably having corresponded to the recited internal under-pressure being maintained within the tight internal volume by the seal that provides the electrical contact by pressure.

C. The Office Action's Application Of Wambach 2 Is Improper

On page 5, the Office Action states that, "[a] connecting connector is a well-known element for connecting solar cell module to an external connector as is evident by the teaching of Wambach in another patent." The Office Action says nothing further about the connecting conductor feature recited in claim 14. Thus, it is not clear, based on the above-

quoted passage, whether the Examiner regards Wambach 1 as lacking the connecting conductor feature. This ambiguity is increased by the Office Action's failure to reject claims 17-19, 22, 23 and 25 over Wambach 2, although these claims each depend from claim 14, which is rejected over Wambach 2, and which recites the connecting conductor feature. Thus, it is also not clear whether the Office Action rejects claims 17-19, 22, 23 and 25 over a total of four or five different references. Accordingly, the Office Action fails to fulfill its critical role in ascertaining the differences between the claimed invention and the prior art (MPEP §2141).

D. Summary

Shima and Brandt are not applied in any manner that would overcome the above-identified shortfalls in the application of Wambach 1 and 2, Modrey, Tourneux and Lee to the subject matter of claim 14.

In view of the above, the combinations of applied references would not have suggested the combinations of all of the features recited in independent claim 14. Thus, the combinations of applied references would not have suggested the combinations of all of the features recited in dependent claims 15-19 and 22-27 for at least the respective dependence of these claims on claim 14, as well as for the separately patentable subject matter that each of these claims recites.

Accordingly, reconsideration and withdrawal of the obviousness rejections of claims 14-19 and 22-27 are respectfully requested.

VI. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 14-19 and 22-27 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

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Attachments:
Request for Continued Examination
July 13, 2005 Form PTO-1449

Date: May 4, 2009

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